Question 2 Write a program to determine which project should be executed using cost-benefit analysis. If the upfront cost is incurred, using the cashflow during a single period and the discount rate, calculate the Net Present Value (NPV) of the project. Also, determine whether the project is viable by comparing projects based on their anticipated revenue and NPV value.

ScreenShot-1:

```
(base) PS D:\study\Main learning\saint_mary> python .\code_base_2.py
Enter the number of projects: 2

Enter the name of the project: Antila
Enter the upfront cost for project Antila: 45000
Enter rate of return or discount rate (in %): 12
Enter the duration (in years): 3
Enter the cash inflow-outflows during year 1: 10000
Enter the cash inflow-outflows during year 2: 37000
Enter the cash inflow-outflows during year 3: 19000

Enter the name of the project: Blue Dragon
Enter the upfront cost for project Blue Dragon: 35000
Enter rate of return or discount rate (in %): 12
Enter the duration (in years): 2
Enter the cash inflow-outflows during year 1: 27000
Enter the cash inflow-outflows during year 2: 27000

                                    Antila
-------------------------------------------------------------------------------
Year       |         Cash         |      PV Factor       |               Amount
           |   Inflows/Outflows   |                      |
-------------------------------------------------------------------------------
1          | $     10,000.00      |        0.8929        | $            8,929.00
2          | $     37,000.00      |        0.7972        | $           29,496.40
3          | $     19,000.00      |        0.7118        | $           13,524.20
Total Income: $66,000.00
Present Value of Future Benefits: $51,949.60
Present Value of Future Costs: $45,000.00
Net Present Value(NPV): $6,949.60

                                  Blue Dragon
-------------------------------------------------------------------------------
Year       |         Cash         |      PV Factor       |               Amount
           |   Inflows/Outflows   |                      |
-------------------------------------------------------------------------------
1          | $     27,000.00      |        0.8929        | $           24,108.30
2          | $     27,000.00      |        0.7972        | $           21,524.40
Total Income: $54,000.00
Present Value of Future Benefits: $45,632.70
Present Value of Future Costs: $35,000.00
Net Present Value(NPV): $10,632.70

The Highest income is generated by project: Antila
The project the company should be executing is: Blue Dragon
```

ScreenShot-2:

```
(base) PS D:\study\Main learning\saint_mary> python .\code_base_2.py
Enter the number of projects: 3

Enter the name of the project: Orian
Enter the upfront cost for project Orian: 100000
Enter rate of return or discount rate (in %): 6
Enter the duration (in years): 3
Enter the cash inflow-outflows during year 1: 50000
Enter the cash inflow-outflows during year 2: 30000
Enter the cash inflow-outflows during year 3: 60000

Enter the name of the project: Gridlock
Enter the upfront cost for project Gridlock: 45000
Enter rate of return or discount rate (in %): 2
Enter the duration (in years): 2
Enter the cash inflow-outflows during year 1: 30000
Enter the cash inflow-outflows during year 2: 20000

Enter the name of the project: Titan
Enter the upfront cost for project Titan: 80000
Enter rate of return or discount rate (in %): 3
Enter the duration (in years): 3
Enter the cash inflow-outflows during year 1: 40000
Enter the cash inflow-outflows during year 2: 20000
Enter the cash inflow-outflows during year 3: 50000

                                    Orian
-------------------------------------------------------------------------------
Year       |         Cash          |      PV Factor       |                Amount
           |   Inflows/Outflows    |                      |
-------------------------------------------------------------------------------
1          | $     50,000.00       |        0.9434        | $           47,170.00
2          | $     30,000.00       |         0.89         | $           26,700.00
3          | $     60,000.00       |        0.8396        | $           50,376.00
Total Income: $140,000.00
Present Value of Future Benefits: $124,246.00
Present Value of Future Costs: $100,000.00
Net Present Value(NPV): $24,246.00

                                   Gridlock
-------------------------------------------------------------------------------
Year       |         Cash          |      PV Factor       |                Amount
           |   Inflows/Outflows    |                      |
-------------------------------------------------------------------------------
1          | $     30,000.00       |        0.9804        | $           29,412.00
2          | $     20,000.00       |        0.9612        | $           19,224.00
Total Income: $50,000.00
Present Value of Future Benefits: $48,636.00
```

```
Present Value of Future Benefits: $48,636.00
Present Value of Future Costs: $45,000.00
Net Present Value(NPV): $3,636.00

                                    Titan
-------------------------------------------------------------------------------
Year       |         Cash         |      PV Factor       |               Amount
           |   Inflows/Outflows   |                      |
-------------------------------------------------------------------------------
1          | $     40,000.00      |        0.9709        | $           38,836.00
2          | $     20,000.00      |        0.9426        | $           18,852.00
3          | $     50,000.00      |        0.9151        | $           45,755.00
Total Income: $110,000.00
Present Value of Future Benefits: $103,443.00
Present Value of Future Costs: $80,000.00
Net Present Value(NPV): $23,443.00

The Highest income is generated by project: Orian
The project the company should be executing is: Orian
(base) PS D:\study\Main learning\saint_mary>
```

ScreenShot-3:

```
(base) PS D:\study\Main learning\saint_mary> python .\code_base_2.py
Enter the number of projects: 2

Enter the name of the project: Mega
Enter the upfront cost for project Mega: 50000
Enter rate of return or discount rate (in %): 10
Enter the duration (in years): 2
Enter the cash inflow-outflows during year 1: 40000
Enter the cash inflow-outflows during year 2: 30000

Enter the name of the project: Maria
Enter the upfront cost for project Maria: 20000
Enter rate of return or discount rate (in %): 30
Enter the duration (in years): 2
Enter the cash inflow-outflows during year 1: 40000
Enter the cash inflow-outflows during year 2: 60000

                                    Mega
-------------------------------------------------------------------------------
Year       |         Cash         |      PV Factor       |               Amount
           |   Inflows/Outflows   |                      |
-------------------------------------------------------------------------------
1          | $     40,000.00      |        0.9091        | $           36,364.00
2          | $     30,000.00      |        0.8264        | $           24,792.00
Total Income: $70,000.00
Present Value of Future Benefits: $61,156.00
Present Value of Future Costs: $50,000.00
Net Present Value(NPV): $11,156.00

                                    Maria
-------------------------------------------------------------------------------
Year       |         Cash         |      PV Factor       |               Amount
           |   Inflows/Outflows   |                      |
-------------------------------------------------------------------------------
1          | $     40,000.00      |        0.7692        | $           30,768.00
2          | $     60,000.00      |        0.5917        | $           35,502.00
Total Income: $100,000.00
Present Value of Future Benefits: $66,270.00
Present Value of Future Costs: $20,000.00
Net Present Value(NPV): $46,270.00

The Highest income is generated by project: Maria
The project the company should be executing is: Maria
```